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How can we use recycle aggregate concrete in rural areas for building homes for the villagers

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ABSTRACT

As we are in the stage of development In India, there are many old and un-demolished buildings which can be demolished and the demolished buildings can be used for the constructions purpose. In India major cities are getting developed but the rural areas are not able to develop properly as most are from agriculture field in which there is not so much profit basically for farmers. So, they cannot build good homes for them and live in mud homes for their entire lifetime. We have to bring change in their lives so that they can get a good life which a normal people lives there, this problem can be solved by the Recycle Aggregate(RA), which can be used in order to construct homes for them, which will be very durable and less costly and more efficient. Doing this work most people will be able to make their dream home at less cost and they can live happily and peacefully.

Keywords— Development recycle aggregate farmers, Demolished building construction

1.INTRODUCTION

Recycled aggregate is generally produced by two stages crushing of demolished concrete, screening and removal of contaminants such as reinforcement, plastic, and etc.

Concrete made with such aggregates is called as Recycled Aggregate Concrete (RAC). Demolition of old and deteriorated buildings and traffic infrastructure and their substitution with new ones is a frequent phenomenon today. In India, 48million tons of solid waste is produced out of which 14.5 million ton waste is produced by the construction waste sector, out of which only 3% waste is used for embankment. (CPCB, Delhi).

Out of the total construction demolition waste, 40% is of concrete, 30% ceramics, 5% plastics, 10% wood, 5% metal, & 10% other mixtures. For the production of concrete, 70-75% of aggregates are required. Out of this 60-67% is of coarse aggregate & 33- 40% is of fine aggregate.



Fig 1: Crushing of demolished buildings



Fig. 2: Demolished waste to recycle aggregate

2. COMPONENTS OF RECYCLED AGGREGATE CONCRETE

- Course Aggregate from Demolished Waste.
- Fine Aggregate from Demolished Waste.

3. WHAT IS THE SITUATION OF PEOPLE IN RURAL AREAS

The situation is Rural area is fine but not that good as they are not getting the basic amenities which they need, they lack all these things. People are not having pucca houses, they are living in a mud house till now also which is very dangerous nowadays as the weather is changing, it can cause tremendous damage if it exceeds its limits. So, we should do something for them as they are also contributing to the Indian Economy. We should keep a check on their ground too and provide all the facilities which they are lacking.

4. HOW TO PRODUCE RECYCLE AGGREGATE CONCRETE

- Crushing and screening system starts with primary jaws, cones or large impactor taking rubble from 30 inches to 4 feet.
- A secondary cone or impactor may or may not need to be run, and the primary and secondary screens may or may need to be used, depending upon and the final product desired.
- A scalping Screen will remove dirt and foreign particles. A fine harp desk screen will remove fine materials from the coarse aggregate.
- Further cleaning is necessary to ensure the recycled concrete product is free of dirt, clay, wood, plastic and organic materials.
- This work is done by water floatation, hand picking, air separator, and electromagnetic separators.
- After that, we obtain different materials which we need to use for our purpose.

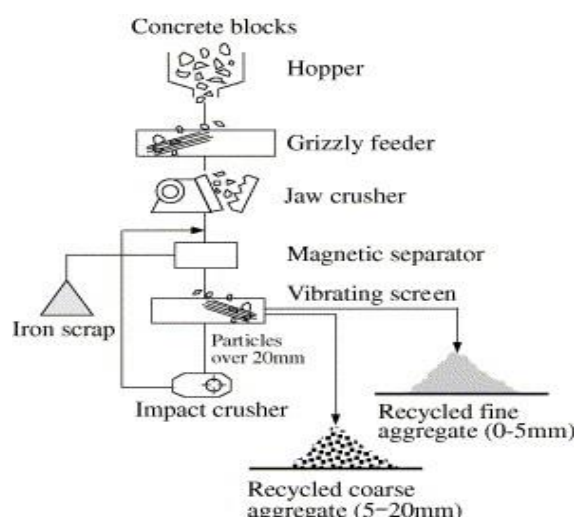


Fig. 3: How demolition waste converted to recycle aggregate

5. HOW CAN RECYCLE AGGREGATE CAN IMPROVE THE STRENGTH OF HOUSES IN RURAL AREAS (TSMA)

We can use Two Staged Mixing approach to construct houses in rural areas. (TSMA) It intended to improve the compressive strength for recycled aggregate concrete and hence lower its strength variability. The effect can be attributable to the porous nature of the recycled aggregate, and hence, the premixing process can fill up some pores and cracks, resulting in a denser concrete, an improved interfacial zone around recycled aggregate and thus a higher strength when compared with the traditional mixing approach. This process is very simple and cost-effective, so this process can be followed up in order to construct houses in rural areas.

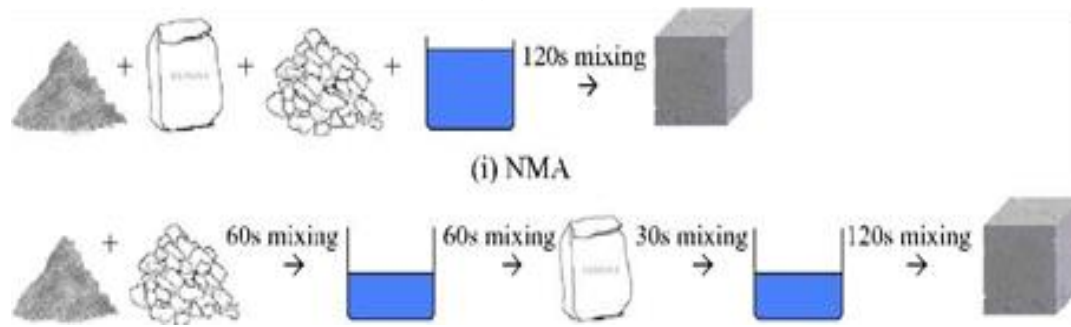


Fig. 4: TMWS Process

Where,

- S Represents time in seconds
- We use Recycle Aggregate.
- Water
- Cement
- Fine Aggregate

6. USES OF RECYCLE AGGREGATE IN RURAL AREAS EXCEPT HOMES

- (i) Cattle Sheds.
- (ii) For Crop keeping Facility.
- (iii) Water Storage Tanks which can be underground the house.
- (iv) For Shop Purpose.
- (v) Small School Buildings.
- (vi) Hideout places for the people when rainfall is there.

7. PROPERTIES OF RECYCLED AGGREGATE CONCRETE

- (i) Physical Properties
 - Sieve Analysis
 - Bulk Density
 - Specific Gravity
 - Bulk Density
- (ii) Mechanical Properties
 - Compressive Strength
 - Tensile Strength
 - Flexural Strength

If we want any construction to be done we have to do the all tests let it be physical and chemical properties. For any type of construction, we need to go through all necessary tests to assure that the building can stand under any high forces in an earthquake or any other problem. We should maintain people trust and provide good homes to them.

8. COST ESTIMATE FOR RECYCLE AGGREGATE CONCRETE

Cost of construction would be less compared to other construction as the material is coming from the dismantled construction site so, the cost will be less, and we can save many Cr Rupees in the construction of houses and many other constructions.

Example, if the Normal construction consumes 2 lakhs, then it will cause around 80-90 Thousands, so it's a huge difference when we are starting the construction.

Considering the fact when we will start the construction it can cause more many then we expected, but once we have all the setup we can save a lot of money.

So for future reference, we can use this method for the construction of houses for the rural areas so that they can get the house in less budget and not get ashamed that he is having the house I'm not having the house.

9. AVAILABILITY OF MANPOWER

What we can see is, a person from a rural area move to higher places in search of jobs, if we create jobs there, itself only. If they construct houses in rural places, then they have not to move anywhere and they can live happily with their family.

Availability of Manpower plays a major role in the completion of the work on time, if there is less manpower then the work would be not complete on time. So, we have to make sure that manpower is enough to complete the project all through the project which is going on.

10. ADVANTAGES OF RECYCLED AGGREGATE CONCRETE

- Cost saving
- Save time
- Less Material Wastage

11. DISADVANTAGES OF RECYCLED AGGREGATE CONCRETE

- Duration of procurement of materials may affect the life cycle of the project.
- Land, special equipment's machineries are required (more cost).
- Very high water absorption (up to 6%)

12. CONCLUSION

From here we can conclude that if we start to build the homes with RAC, every individual people in rural areas in the entire country will have their own home. And they can live happily. Why should we compromise with their happiness, they also have all liability to stay happy. So, we should do something for the agriculture people so that they can also live a happy life. They should have all the basic amenities with them so that they are not differentiated from the other people of the society.

13. REFERENCES

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